Appendix

Investigation of HO₂ uptake onto Cu(II)- and Fe(II)-doped aqueous inorganic aerosols and seawater aerosols using laser spectroscopic techniques

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Table A1. Chemical components of the detected seawater from Hachijojima.

Composition	Seawater (Hachijojima) w/v
NaCl	3.5%
NO_3^-	0.17%
PO_4^{3-}	0.013%
SiO_2	0.40%

Table A2. Input and output variables for E-AIM and ISORROPIA.

	E-AIM	ISORROPIA
Input	Temperature, Relative humidity, $[H^+]$, $[NH_4^+]$, $[Na^+]$, $[SO_4^{2-}]$, $[Cl^-]$	Temperature, Relative humidity, $[Na^+]$, $[SO_4^{2-}]$, $[NH_4^+]$, $[Cl^-]$
Output	moles of species in the aqueous phase, moles of gases, and aerosol water content	Equilibrium concentrations and aerosol water content

Table A3. Concentration of additions in the aerosol phase estimated from E-AIM and ISORROPIA models at room temperature.

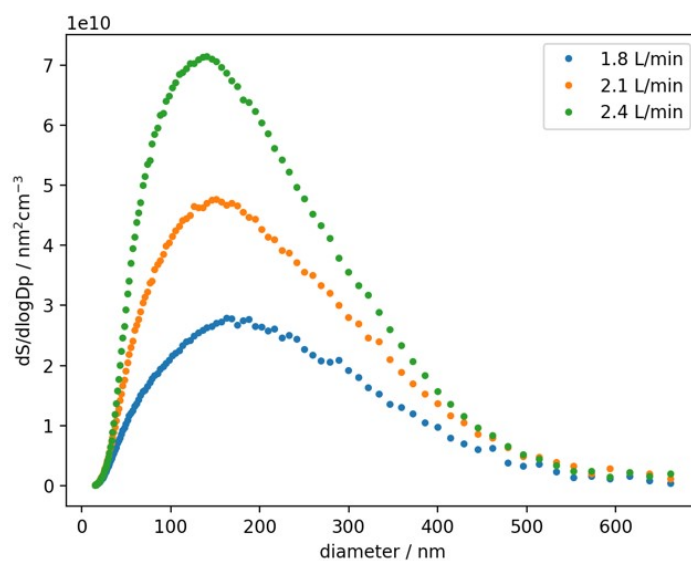| solutions	[TMIs] (M)	
	E-AIM	ISORROPIA
NaCl+Cu(II)	0.10	0.10
NaCl+Fe(II)	0.06	0.06
NaCl+L-ascorbate	0.07	0.07
$(NH_4)_2SO_4$+Cu(II)	0.11	0.10
$(NH_4)_2SO_4$+Fe((II)	0.11	0.11
Na_2SO_4+Cu(II)	0.12	0.12
Na_2SO_4+Fe(II)	0.10	0.11

Figure A1. Examples of the surface distribution of deliquesced NaCl particles with different dilution zero-gas flow rates.
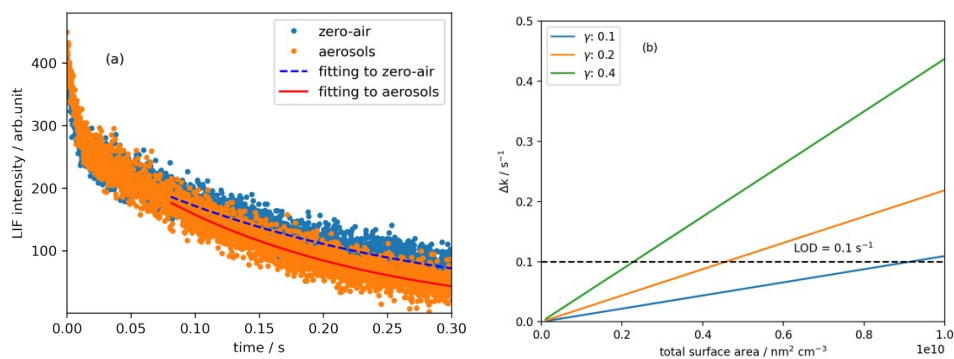

Figure A2.　(a): Examples of the decay profile of HO_2 loss rate with zero-air and with aerosols. Solid and dashed lines are the single exponential fitting lines to extrapolate the decay rate with time range from 0.08 to 0.5 s; (b): Theoretic loss rate of HO_2 with respect to aerosol total surface area estimated from the gamma equals 0.1, 0.2, and 0.4. The dashed line refers to the limit of detection of LP-LIF.
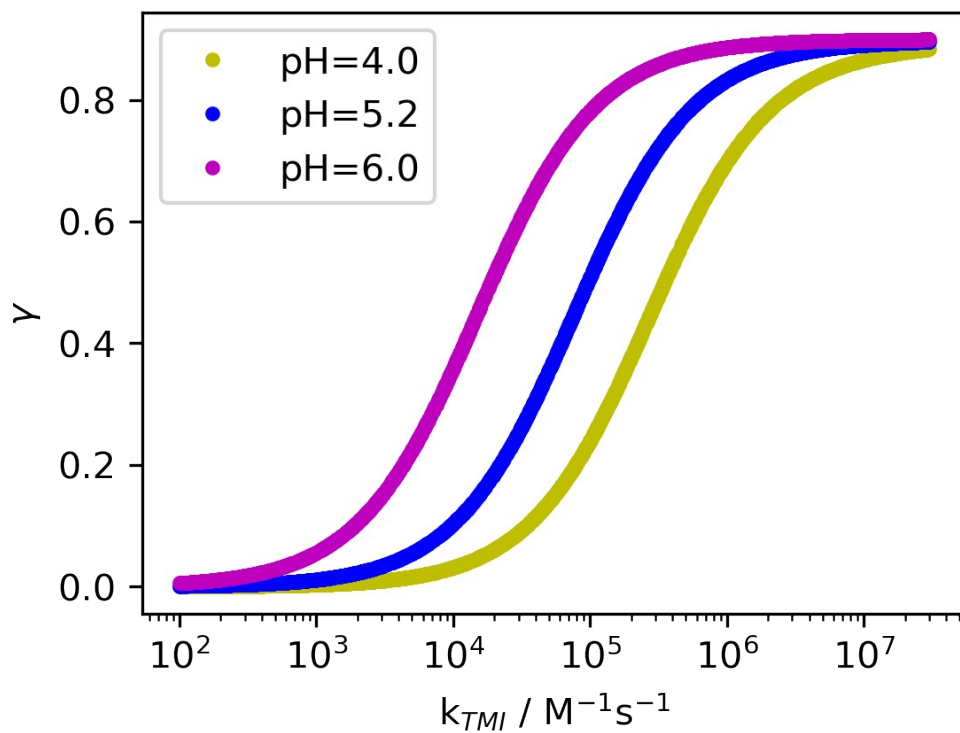
Figure A3.   Example of the estimation of the rate constant of HO_2 with the presence of TMIs in the aerosol-phase versus uptake coefficient under different pH conditions.